JMYT-369US

Appln. No.: 10/585,808

Amendment Dated November 23, 2009 Reply to Office Action of July 22, 2009

<u>Amendments to the Claims:</u> This listing of claims will replace all prior versions, and listings, of claims in the application.

## **Listing of Claims:**

- 1. (Currently Amended) A polymer <u>consisting of linked units</u>, wherein <u>each of</u> at least 80% of the <u>monomer repeatlinked</u> units <u>comprise consists of one ion-conducting region and one spacer region connected thereto, wherein</u>
  - an ion-conducting region consisting of an aromatic backbone of at least one aromatic group, wherein at least one pendant ion-conducting functional group is attached to each aromatic group in the aromatic backbonethe ion-conducting region consists of one or more aromatic groups, optionally connected by electron-donating groups, each of the one or more aromatic groups being adjacent to at least one electron-donating group and each having attached thereto at least one pendant ion-conducting functional group; and
  - b) a spacer region consisting of an aromatic backbone of at least four aromatic groups, wherein no ion-conducting functional groups are attached to the aromatic backbonethe spacer region consists of at least four aromatic groups, optionally connected by electron-withdrawing groups, each of the at least four aromatic groups being adjacent to at least one electron-withdrawing group and none of them having attached thereto an ion-conducting functional group.
- 2. (Currently Amended) A polymer according to claim 1, wherein at least 95% of the monomer repeatlinked units comprise consist of the ion-conducting region and the spacer region.
- 3. (Currently Amended) A polymer according to claim 1, wherein the at least one or more aromatic groupsgroup in the ion-conducting region is/are selected from the group consisting of phenylene, napthylene and anthracenylene groups.
- 4. (Currently Amended) A polymer according to claim 1, wherein each aromatic group in the aromatic backbone of the ion-conducting region is adjacent to an electron-donating group.
- 5. (Original) A polymer according to claim 4, wherein the electron-donating group is an ether group.

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- 6. (Currently Amended) A polymer according to claim 1, wherein the at least one <u>pendant</u> ion-conducting functional group <u>attached to each of the one or more aromatic groups in the ion-conducting region is a sulphonic acid group.</u>
- 7. (Previously Presented) A polymer according to claim 1, wherein the ratio of the number of aromatic groups in the spacer region to the number of aromatic groups in the ion-conducting region is at least 2:1.
- 8. (Previously Presented) A polymer according to claim 1, wherein the at least four aromatic groups in the spacer region are selected from the group consisting of phenylene, napthylene and anthracenylene groups.
- 9. (Previously Presented) A polymer according to claim 1, wherein the at least four aromatic groups in the spacer region are connected by electron withdrawing groups.
- 10. (Original) A polymer according to claim 9, wherein the electron-withdrawing groups are sulphone or ketone groups.
- 11. (Previously Presented) A polymer according to claim 1, which has an equivalent weight of less than 800gmol<sup>-1</sup>.
- 12. (Previously Presented) A polymer according to claim 1, which has an inherent viscosity of greater than 1.0dl/g.
- 13. (Previously Presented) A polymer solution comprising a polymer according to claim 1.
- 14. (Previously Presented) A polymer electrolyte membrane comprising a polymer according to claim 1.
- 15. (Previously Presented) An electrocatalyst layer on a substrate wherein the electrocatalyst layer comprises a polymer according to claim 1.
- 16. (Previously Presented) A membrane electrode assembly comprising one or both of a polymer electrolyte membrane and an electrocatalyst layer on a substrate, wherein the polymer electrolyte membrane and the electrocatalyst layer comprise a polymer according to claim 1.
- 17. (New) A polymer wherein at least 80% of the repeat units are of the structure:

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wherein:

each d is independently an electron-donating group;

each n is independently 0 or 1;

each A is independently one or more aromatic groups optionally connected by electron-donating groups, each of the one or more aromatic groups having attached thereto a pendant ion-conducting functional group and each one or more aromatic groups being adjacent to at least one electron-donating group; and

each B is independently at least four aromatic groups optionally connected by electron-withdrawing groups, each of the at least four aromatic groups being adjacent to at least one electron-withdrawing group, and none of the at least four aromatic groups having attached thereto a pendant ion-conducting functional group.